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Consulting Engineers and Scientists

March 18, 1997

Utah Department of Natural Resources
Division of Oil, Gas and Mining
Minerals Regulatory Program
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

ATTN: Mr. D. Wayne Hedberg

RE: Cricket Mountain Mine M/027/006 (SRK Project #57705) - Response to UDOGM Facsimile Dated March 7, 1997

Dear Mr. Hedberg:

This letter contains Continental Lime's (CLI's) response to the Division's comments dated March 7, 1997. We have included the Division's comments into the body of this letter, and subsequently providing response following the Division's comment(s).

Continental Lime Inc. (CLI) originally received comments from the Division on the Cricket Plan NOI in a letter dated October 2, 1996. In order to clarify some of the Division's requests, discuss critical issues and focus responses to the comments, meetings between the Division, CLI and Steffen Robertson and Kirsten (SRK) were conducted on November 20, 1996 and March 12, 1997 in UDOGM's offices. CLI's responses submitted in this letter are based, in part, on agreements made during the aforementioned meetings.

R647-4-105 MAPS, DRAWINGS & PHOTOGRAPHS

105.2 Surface facilities map

CLI's response to the BB Dolomite surface facilities acreage question refers to Table 2.1 of the Environmental Assessment (EA). The Division does not have a copy of the Final EA. Please provide us with a copy of the Final EA to resolve this comment. If the Final EA is not available, providing a copy of the revised Table 2.1 would resolve this comment. (AAG)

The draft EA has been reviewed by the BLM. Please refer to Attachment C of this document. The BLM has informed CLI that they are awaiting the results of an informal consultation with the USFWS prior to publishing the final EA. A copy of the amended EA which includes BLM comments was submitted to UDOGM on March 12, 1997. A copy of BLM comments dated January 28, 1997 is included as Attachment A of this document.

R647-4-106 OPERATION PLAN

106.5 Existing soil types, location, and amount

The operator needs to provide a soils analysis for each of the two soil types identified. This analysis needs to include the following parameters: pH, EC (conductivity), SAR (Sodium Absorption Ratio), Percent Organic Matter, CEC (Cation Exchange Capacity), Total Nitrogen,

Nitrate Nitrogen, Phosphorus (as P_2O_5) and Potassium (as K_2O). This analysis is needed to determine the types and rates of soil amendments needed for reclamation (LK).

CLI commits to attain a soil analysis per the Division's request. The results of the analyses will be provided to the Division by March 26, 1997. However, it should be noted that the Division and CLI agreed that the Division will be willing to accept these results beyond the March 26, 1997 deadline if the contracted laboratory cannot provide the results by March 26, 1997. CLI will contact the Division if it appears as though the results of the soil analyses will not be completed by March 26, 1997.

The operator has identified approximately 78,100 cubic yards of topsoil that could be salvaged from the areas to be disturbed. This is sufficient volume to cover about 1/3 of the proposed new disturbance with 4-6" of topsoil. While the Division will accept that this amount is all that can be safely salvaged from the site, there remains a deficit of suitable soil material for reclamation. As originally proposed, Continental Lime was to implement a revegetation testplot program to demonstrate that fines and/or other materials could be used to successfully reclaim disturbed areas. To date, the Division has received very little documentation of the testplots that would demonstrate successful revegetation without the use of topsoil. Therefore, the Division may require topsoil borrow areas pending final results of revegetation test plots. The use of topsoil borrow areas will need to be coordinated with other surface management agencies (LK).

Please refer to section R647-4-112 of this document. CLI has requested a variance from revegetation standards. As agreed in the March 12, 1997 meeting, CLI will continue to evaluate revegetation success through the test plot program. In this program, CLI will evaluate various amendments including but not limited to manure and hay. CLI will submit to the Division a detailed soil test plot program by April 23, 1997. Through this program, CLI will acquire data to determine the revegetation success of certain seeds, and the percent cover that can be expected. With this information, CLI can propose to the Division a reasonable alternative to the 70% revegetation standard of R647-4-111.13.12.

In cooperation with UDOGM, CLI reserves the right to alter the revegetation program, CLI presently proposes to spend $241/acre for seed, amendments and application costs. This is considered a maximum cost, and CLI reserves the right to modify the proposed revegetation plan, if it can be demonstrated that the disturbed area can be revegetated at a lower cost/acre. The present revegetation costs include: a seed cost of $75/acre, and a soil amendment cost of $166/acre, application costs of $76.93/acre. The revegetation costs also include an additional $144,287 for fines hauling, $16,822 for the grading of fines, and $26,811 for the ripping of benches.

On March 12, 1997, CLI and UDOGM agreed that CLI would not be required to establish soil borrow areas, nor place fines materials on pit benches. However, following a conversation with DOGM personnel on March 13, 1997, the BLM indicated they would require CLI to place 6 inches of undersize limestone on the pit bench areas. Therefore, until the effectiveness of this method is determined through the test revegetation program, CLI has included this activity in the estimated reclamation costs (Attachment B). Because the utilization of undersize material will reduce the total volume of undersize material remaining in each of the two undersize material piles by approximately 20%, reclamation costs for these piles now include regrading of all slopes to 3H:1V, topsoil placement and revegetation.

106.7 Existing vegetation-species and amount

The operator apparently hired a consultant to obtain this data. While a description of the vegetation was submitted, no data regarding specific vegetation cover, or methodology used for obtaining vegetation cover estimates was submitted. It is requested that the operator provide the Division with a copy of the vegetation report (Kass, 1996) referenced in the Draft EA (LK).

The Kass (1996) report was submitted to the Division at the March 12, 1997 meeting.

With respect to the cover, the contracted survey was conducted to confirm the accuracy of previous vegetation surveys in the general project area with respect to composition and extent of the vegetative communities, and provide a summary of the percent vegetative cover. In an attempt to better understand the present vegetation cover and provide the Division with data necessary to rule on a variance per R647-4-112 at the Project, CLI is willing to identify representative reference areas in consultation with the Division and monitor these throughout operations and reclamation.

106.8 Depth to groundwater, extent of overburden, geology

The EA does not provide the specifics asked for in the Division's October 2, 1996 review document. The unanswered questions regarding groundwater and the well found on site are as follows: Location of the well site on a plate, what aquifer the water is withdrawn from, and how the well was completed (TM)

The well is located in the SW corner of Sec. 36, T21S, R9W, SLB&M. A map with the location of the well will be submitted to the Division by March 26, 1997. The well is 3,005 feet deep, and draws water from several zones. The cuttings recovered indicate valley-fill deposits including lacustrine silts and clays, sand, and cemented cobbles. No named aquifers were recognized. Oviatt (1991) mapped the surficial deposits as Pleistocene Epoch Lake Bonneville lacustrine sediments overlying Tertiary period lake sediments.

The well consists of two wellheads to a total depth of 3,005 feet from the collar. The upper portion of the well is completed in silts and clays to a depth of approximately 1,240 feet. The first well is 10 inches in diameter and completed in this zone, to a depth of 780 feet. The deeper well is 8 ¾ inches in diameter and is cased to 1,240 feet, and perforated in 10 separate areas between 1,240 feet to 2,955 feet measured down from the collar. Static water level is located approximately 240 feet down from the collar.

The following is a chemical assay of the well: TDS—2710 mg/l, TSS <1 mg/l, Alkalinity as $CaCO_3$—490 mg/l, Chloride—685 mg/l, Nitrate as N--<0.05 mg/l, Sulphate as SO_4—526 mg/l.

R647-4-107 OPERATION PRACTICES

107.2 Drainages to minimize damage

The response says that it provides the specific information asked for in the review document in section 4.1.5 of the EA. This response found in the EA only addresses, in general, the outcome of the analysis for Waste Disposal Area #1. Please provide this analysis of Waste Disposal Area #1. No mention of impacts to the other impounded drainages was referenced in the EA and it is appropriate that they are mentioned, as well, in terms of amount of drainage and potential impacts. Please address the specific questions that were not addressed and asked for under this section in the October 2, 1996 review document. These questions are as follows: Will the

undersize material stockpile in the BB Dolomite Quarry area incorporate any design features to bypass or route the drainage which will be blocked by this stockpile? Please provide some specifics on all drainages ephemeral or otherwise that will be affected . (TM)

The engineering report outlining the potential for Waste Disposal Area #1 to impound water was submitted to the Division at the March 12, 1997 meeting.

Due to the nature of rock and the limited amount of water, the runoff may be slowed, but should not impound enough water to flood the top of the revegetated dump or cause erosion. UDOGM should also note that this slowing of runoff could serve to enhance wildlife habitat and promote vegetation growth in the disturbed area.

The currently proposed configuration for the Poison Undersize Material Stockpile will not block the drainage to the north (please see comments under section 110.2 of this document). As a result of the recent request by the BLM to place undersize material on pit benches, the size of this pile will be reduced sufficiently to allow the slopes to be regraded to 3H:1V without blocking the drainage. (Should this requirement be retracted at some future date, the northern slope of this pile will be left at a slope that avoids blocking the drainage.) The haul roads will be engineered to include swales or culverts where they cross ephemeral drainages to avoid impeding surface water flows.

Dump #2 will be located on a ridge, and is designed to avoid blocking the drainage to the west. Dumps #3 and #4 will be constructed at the heads of drainages, and should not capture up-gradient flows. The Flat Iron Quarry is located at the head of a drainage, and likewise should not capture up-gradient flow. The North Lobe and BB Dolomite Quarries are both located on topographic highs. The haul road associated with Flat Iron Quarry will be located along an ephemeral drainage, but will be constructed with engineered structures necessary to convey storm water flows.

A surface water study of the catchment area potentially impounded by the BB Dolomite Undersize Pile is in progress. This will be submitted to the Division by April 23, 1997. Based on this, a decision will be made regarding whether flows will be diverted around the pile or allowed to impound above the pile. If diverted, the diversion structure will be engineered to convey peak flows from a 100yr/24hr storm event safely around the impoundment. If constructed, this structure will remain in place following reclamation, therefore no modifications to the reclamation plan will be required regardless of the alternative selected.

107.6 Concurrent reclamation

The EA does not address the current test plots and how that information will be collected and used to enhance future reclamation efforts at the mine site. There were no specifics in the 1996 Annual Report and therefore based on comments found in 106.5 above, it seems appropriate that an effort is made at this time to define the program related to the test plots. (TM)

CLI is in the process of designing a test plot program for the proposed Project. Although data collected at the Poison Mountain revegetation test plots may be applied to the proposed Project, it should be noted that concurrent reclamation and associated test plots at Poison Mountain are separate and distinct from the proposed Project. As discussed in the March 12, 1997 meeting CLI has committed to supply the Division with a detailed description of the proposed revegetation test plots for the proposed Project by April 23, 1997.

R647-4-109 IMPACT ASSESSMENT

109.1 Impacts to surface & groundwater systems

The specifics asked for under 107.2 and under the groundwater section 106.8 are to be addressed before this is considered adequate. This involves specifically addressing the water well location, what formation it is found in, and the potential for impact to that aquifer based on the geology and the formation in which the mine will be developed in. (TM)

Please refer to subsections 107.2 and 106.8 of this document.

R647-4-110 RECLAMATION PLAN

110.1 Current & post mining land use

DOGM needs final EA to verify this is OK - LK

The EA is in the approval process with BLM. Pursuant to meetings with BLM on April 25, 1995; April 2, 1996; July 2, 1996; February 24, 1997; February 25, 1997 and a letter dated January 28, 1997, BLM had no objections to the proposed current and post mining land use (including reclamation). Please refer to the January 28, 1997 letter from BLM and the final draft of the EA as amended by the BLM. At this time, the BLM is awaiting the results of an informal consultation with the USF&WS to publish the final EA.

110.2 Roads, highwall, slopes, drainages, pits, etc. Reclaimed

The third paragraph under this heading on page four of the CLI response refers to Drawing 3-1 (BB Dolomite Quarry) and Drawing 5-1. In this paragraph CLI proposes to regrade the north slope of the Poison Mountain Undersize Material Stockpile to 3H:1V. The south and east sides of this stockpile will be at grade. The west side of the stockpile would be left at angle of repose to avoid covering the existing road located along that side of the dump. The description box shown near the Poison Mountain undersize stockpile on the revised drawing 5-1 states under item one that slopes will be left at angle of repose. The description box and response letter are in conflict. It appears the third paragraph is actually referring to reclamation of the undersize material stockpile located adjacent to the BB Dolomite Quarry rather than the stockpile near the Poison Mountain Quarry. Please clarify this conflict of information. (AAG)

CLI acknowledges the conflict of information. The Division is advised that the letter should have referenced the undersize material stockpile located adjacent to the BB Dolomite Quarry rather than the stockpile near the Poison Mountain Quarry. The description box on Drawing 5-1 is correct as shown. However, CLI will re-submit drawing 5-1 by April 26 to include areas that will be left as bare rock.

The reclamation proposed for the undersize material stockpile adjacent to the Poison Mountain Quarry is unacceptable to the Division as described in the fourth paragraph under this heading of the CLI response. The Division will require all slopes of this dump to be regraded to a 3H:1V configuration as described in the previously approved mine plan. The justification provided by CLI for leaving the north slope of this dump at angle of repose to avoid blocking the drainage is insufficient. This drainage is blocked or impacted at several upstream locations by haul roads and overburden disposal area #1. Please modify the reclamation cost to reflect this task. (AAG)

On March 12, 1997, CLI and UDOGM agreed that SRK would perform an analysis of the drainage area in question. The analysis showed that the blockage created by the regrading of

the Undersized Material Stockpile would not effectively drain the inflow (112 cfs) from a 100-year 24-hour storm event. Therefore, blocking this drainage would cause erosion along the toe of pile and contribute to long-term instability of the pile.

However, following a conversation with DOGM personnel on March 13, 1997, the BLM indicated they would require CLI to place 6 inches of undersize limestone on the quarry benches. As a result of the request by the BLM, the size of this pile will be reduced sufficiently to allow the slopes to be regraded to 3H:1V without blocking the drainage. The reclamation costs have been modified to reflect this.

110.3 Description of facilities to be left (post mining use)

DOGM needs final EA to verify this is OK - LK

CLI proposes to leave no facilities (post-mining) except the road to the first switchback in the Poison Mountain Quarry as currently permitted. As of the letter dated January 28, 1997, BLM had no objections with CLI's proposed post-mining use. Please refer to Attachment A of this document.

110.5 Revegetation planting program

Scarlet Globemallow was left off the seed mix in the Draft EA. Please explain why this was left out, or preferably, add it back to the seed mix at a rate of ½ pound per acre (PLS). (LK)

As per the March 12, 1997 meeting, CLI commits to change the proposed seed mix to include $^{1}/_{10}$ pound (PLS) Scarlet Globemallow and ¼ pound (PLS) Utah Penstemon. CLI and the Division also agreed to alter the seed mix, if necessary, based upon availability, cost, and vegetation success as determined by the test plots.

The 2 tons of straw mulch as identified on page 6 of the reclamation cost estimate is not appropriate. The alfalfa pellets identified on page 8 would be acceptable provided the rate is adequate. This could be as high as five (5) tons per acre. Manure at 20-30 tons per acre may be as effective at a lower cost. This should be looked at in the test plot program. The reclamation cost estimate needs to be revised to reflect the use of either of these amendments. (LK)

As per the March 12, 1997 meeting, CLI commits to abandon the use of straw, and proposes to use up to 2-3 tons of manure/acre. The reclamation cost estimate reflects these changes (Attachment B). These amendments are subject to change, over time, as CLI collects data relative to the test plot program.

R647-4-111 RECLAMATION PRACTICES

111.1 Public safety & welfare

1.12 Disposal of trash & debris

CLI's response to the question regarding onsite burial of debris refers to subsection 3.1.9 of the EA. This section of the draft EA states all materials would be removed at closure and disposed of in an approved landfill. The removal of demolition debris is acceptable to the Division, however, the reclamation estimate will need to include the cost of debris removal. (AAG)

Demolition debris will be removed from the site with the exception of concrete foundations which will be buried during regrading. The demolition costs presented in the reclamation cost estimate (Attachment B) include the cost of offsite disposal. Per a verbal

communication with Millard County landfill on March 12, 1997; it was determined that the cost of dumping at the landfill was $24/standard dump truck load. The cost of general trash removal was based on collecting an average of ½ cubic yard/acre, requiring ½ hour of general labor and costing $0.48/mile to haul the trash 30 miles to the county landfill.

111.12 Topsoil redistribution

See Comments under R647-4-106.5. (LK)

CLI will attain a soil analysis per the Division's request. The results of the analyses will be provided to the Division by March 26, 1997. However, it should be noted that the Division and CLI agreed that the Division will accept these results beyond the March 26, 1997 if the contracted laboratory cannot provide the results by March 26, 1997. CLI will contact the Division if it appears as though the results of the soil analyses will not be completed by March 26, 1997.

R647-4-112 VARIANCE

Assuming Continental Lime, Inc. can demonstrate successful revegetation using fines and other materials (through their testplot program), the Division concurs with the soil replacement plan for the estimated 78,100 cubic yards of salvageable topsoil. However, if testplots are not successful, the Division will require topsoil borrow areas to cover those areas where revegetation would likely be successful (i.e., benches, section 106.5 of this document.

Per the March 12, 1997 meeting, CLI and UDOGM agreed that CLI would not be required to borrow topsoil. Further, CLI and UDOGM agreed that CLI would not haul fines onto benches or any other portion of the Project. CLI had committed to reseed all areas disturbed, except the pit proper, and provide soil amendments and seed to the topsoiled areas and angle of repose slopes of the fines piles. CLI also committed to establish revegetation test plots and reference areas that will provide the Division with a representative analysis of the pre-mining condition(s) and data relative to the revegetation success of the proposed seed mix and soil amendments. It was also agreed in the March 12, 1997 meeting that the Division would consider a variance based upon data collected at the test plots.

Contrary to the agreements established by CLI and UDOGM on March 12, 1997; the Division has coordinated with BLM to require CLI to haul fine limestone from undersize piles to the quarry benches for reclamation purposes. CLI reserves the right to contest the hauling of fines onto the benches pending the results of test plot data. Per a verbal communication with Lynn Kunzler (UDOGM) on March 18, 1997, UDOGM will require CLI to cover the benches with a minimum of 6 inches of fines. The Division has agreed to change this number pending the results of the test plot program. Given the fact that topsoil is unavailable to cover the benches and the success of the fines revegetation is unlikely, CLI hereby requests a variance from the 70% revegetation standard (R647-4-111.13.11).

Currently there appears to be conflicting plans for seeding. While the variance section states that only areas receiving growth media will be seeded, it appears that other areas of the plan (i.e., reclamation cost estimate) indicate most, if not all areas will be seeded.

It was agreed to in the November 20, 1996 and the March 12, 1997 meetings that CLI would "make an attempt" to reseed all disturbed areas except the quarries. This included angle of repose portions of the screened undersize material piles and coarse rock angle of repose slopes of the waste rock disposal areas.

It was also pointed out that unvegetated, loose rock slopes (talus) were naturally occurring landforms in the area (photos included in NOI), and therefore, angle of repose slopes consisting of competent coarse rock would not be inconsistent with the existing environment. CLI will not apply any growth-enhancement media to the "coarse rock angle of repose slopes of the waste rock disposal areas". However, CLI will apply up to 2-3 tons/acre of manure as mulch to the angle of repose slopes on the BB Dolomite and Poison Mountain Undersize Material Piles. The Division only requested that CLI apply seed to these areas and it was discussed that it would not be reasonable to require these areas to meet the standards of R-647-4-111.

These commitments were modified to include revegetation of quarry benches, as described above after the Division coordinated with BLM to require CLI to haul fine limestone from undersize piles to the quarry benches. The current reclamation cost estimate was modified to reflect these changes (Attachment B).

The Division does not accept the statements that 'the coarse rock angle of the repose slopes of the waste rock disposal areas and the angle or repose portions of the screened undersize material piles will not provide an adequate base for revegetation'. Division personnel have seen other similar areas successfully revegetated after being amended with 20-30 tons/acre of composted manure. Continental Lime, Inc. needs to put more effort into their testplot program to determine how to revegetated non-topsoiled areas. At the present time, the Division will require seeding of all areas disturbed by mining activities except rock outcrop and roads that will be left for post mining land use.

As discussed in the March 12, 1997 meeting, the "similar areas" seen by Division personnel (Black Pine Mine, Idaho) did not have 20 to 30 tons of composted manure applied, but 10 to 14 tons. This was not done on all areas of the project. Furthermore, based on our detailed discussions with the operator, state regulators and the manure supplier for that operation, it is clear that the situations at the Black Pine Mine and Cricket Mountain are not analogous. According to state regulators, the activities mentioned went far beyond what could be reasonably required as a permit condition and were primarily intended as a visual mitigation measure and were not expected to contribute to the surface stability of the area. The operator indicated that one of the primary reasons for extra effort was their desire to avoid returning to areas high on a mountain that would be inaccessible following reclamation. Finally, the manure used at Black Pine is special, high quality composted manure that is not readily available in most areas.

No local source of composted manure in the quantities required has been identified. However, CLI will obtain and apply up to 2-3 tons/acre of manure as soil amendments on areas with topsoil and fines, and on angle of repose slopes of undersize piles. Pursuant to the agreement between the Division and the BLM, CLI commits to seed all areas except the pit walls, and to redesign the test plot program. However, CLI reserves the right to contest the hauling of fines onto the benches pending the results of test plot data.

In summary, before the Division can grant the requested for topsoil redistribution (R647-4-111.12) and revegetation (R647-4-111-13), Continental Lime, Inc. will need to provide better justification and propose alternate standards for determining reclamation success. (LK)

CLI does not propose any alternative standard for reclamation for areas on which topsoil will be placed. The reclamation standard proposed for the areas within quarry excavations is mass stability and adequate safety protections. The alternative standard proposed for the

angle of repose rock faces of the waste rock disposal areas is stability with respect to mass movement and erosion. As previously mentioned, CLI commits to reseed angle of repose waste rock slopes.

CLI justifies the request for variances based upon a verbal communication with Lynn Kunzler (UDOGM) on March 18, 1997. The Division has conceded the fact that a topsoil deficiency exists at the Project. Therefore, it would be unreasonable to hold CLI to the requirements of a "standard operation". CLI has been instructed to haul fines onto the quarry benches in an attempt to revegetate the quarry areas. Further, CLI will establish revegetation test plots and conduct transects to establish percent cover. Given this, CLI has exhibited due diligence in attempting to provide the Division with alternate standards for determining reclamation success.

R647-4-113 SURETY

The current reclamation surety posted for the Cricket Mountain Quarry is $330,400 in terms of year 2000 dollars for approximately 169 acres of disturbance. This revision proposes to increase the disturbance by approximately 303 acres and increase the existing surety amount by $408,372. The comments in this section may alter the amount of reclamation surety required for this revision. Please respond to these comments and adjust the reclamation cost estimate accordingly.

Any changes necessary per the Division's comments have been made and are submitted herein as Attachment B.

Page one (Reclamation Cost Summary) of the reclamation cost estimate will need to be revised to include a 10% contingency increase in the total, followed by five years of escalation at an annual rate of 2.52%. (AAG)

A 10% contingency is included as a line item on the summary page.

Please provide the acreage disturbed for each of the facility types listed in the table on page two of the Reclamation Cost Summary for this proposed revision. You may provide this information in a table form separate from the spreadsheet calculation page if convenient. (AAG)

The acreage of disturbance related to the modification has been previously submitted as Table 1.1 of the NOI and included as modified per the November 20, 1996 meeting as Table 2.1 of the Draft EA. An expanded version of Table 2.1 which includes the acreages proposed for reclamation is attached as Table A. For surety calculations we have also included previously bonded disturbance at the Poison Mountain crusher/screening facility and undersize material stockpile. These areas are previously bonded to disturb 17.0 and 27.3 acres, respectively.

Page eight of the reclamation cost estimate includes an amendment application and incorporation cost for alfalfa pellets. No mention of alfalfa pellets could be found in the text portions of the submission describing reclamation treatments. Please modify the text describing the reclamation treatments to include the amendments and application rates used in the reclamation cost estimate. (AAG)

The use of alfalfa pellets is not proposed as mulch for any project disturbance. It appears in the referenced page as an available alternative only. The reclamation estimate includes the cost of placing three tons of composted manure on all areas to receive topsoil and the angle of repose Undersize Material Piles as agreed to in the March 12, 1997 meeting.

Page nine of the reclamation cost estimate shows that no topsoil or seed is to be placed on the slopes of Dump #2; however, soil amendments will be applied to the slopes. The dialog box on Drawing 5-1 does not make the distinction that only select areas will be seeded. Please clarify the dialog box or modify the reclamation estimate appropriately. (AAG)

Seed will be applied to the angle of repose slopes as described under section R647-4-112, above. The plan has been revised to include placement of up to 2-3 tons/acre of composted manure all areas to be revegetated except the coarse and durable angle of repose slopes of the waste rock disposal areas. The reclamation cost estimate includes costs for placement of 3 ton/acre of composed manure. The cost of manure is based on a contractor's (Compost West) estimate to deliver and spread composed manure.

The angle of repose slopes will not be subject to the revegetation standards of R-647-4-111.13 as described in comments under Section R-647-4-112 above.

Page ten of the reclamation cost estimate includes the application of topsoil to tops and slopes for West Quarry Dump #1. The dialog box on drawing 5-1 states tops will be covered with topsoil. It is assumed that the term slopes in the calculation sheet actually refers to benches on the dump. If this is correct, please modify the dialog box(es) to reflect the placement of topsoil on dump tops and benches. Please include similar descriptions in all dialog boxes on Drawing 5-1 regarding the specific areas (tops, benches, slopes) to receive soil, seed and soil amendments as described in the reclamation calculations. If all portions of a feature will receive these treatments please modify the dialog box (e.g., cover all areas with 4" topsoil). (AAG)

Topsoil will only be placed on the level surfaces of West Quarry Dump #1. This has been corrected in the final cost estimate attached (Attachment B).

Page 32 of the reclamation calculations does not include a line item for seed application to the top of bench one for waste rock dump #4. Please explain this omission. (AAG)

This has been corrected in the final cost estimate attached (Attachment B).

Page 33 of the reclamation calculations lists the total topsoil required for dump #5 (Poison Mtn. Undersize Mtl.) as 34,767 cubic yards. The topsoil reapplication page for this dump listed a soil volume of 30,370 cubic yards. Please explain these different figures. (AAG)

Due to the modifications resulting from the requirement to place undersize materials on the quarry benches, the correct volume of topsoil required for this area is 13,679 cubic yards. The numbers in the calculation are internally consistent. This is reflected in the final cost estimate attached (Attachment B).

The Poison Mountain Undersize Material Stockpile (also known as the rejects stockpile) was previously bonded for as a disturbance of 27.3 acres at a cost of $30,290. The expansion of this feature by 10.8 acres would not necessarily require a reduction in the reclamation cost estimated for this feature as stated in the SRK Bond Calculation cover letter. (AAG)

Due to the modifications resulting from the requirement to place undersize materials on the quarry benches, the increase in disturbance area for the expanded Poison Mountain Undersize Material Stockpile will be only 4.1 acres. The new design also includes terracing during construction to facilitate and reduce the costs of final regrading. The cost required to reclaim the newly designed and expanded Poison Mountain Undersize Material Stockpile is currently estimated at $37,350 (Attachment B). This represents an increase of $7,060 in the cost estimate.

Page 41 of the reclamation calculations lists a cost for regrading the north slope of the BB Dolomite Undersize Material as $5,770. This cost is for regrading 69,705 cubic yards of material from an angle of repose slope to a 3H:1V configuration. The hourly dozer production of 1,647 cubic yards used in this calculation seems high for a corrected production figure. The table in the 26th Edition of the Caterpillar Performance Handbook for estimating dozing production gives an uncorrected production of approximately 750 LCY/hr for a D9U with a push distance of 200 feet. Please explain the rationale for this slope regrading cost. (AAG)

The 750 LCY/hr is based on a level grade with a pass length of 200 feet. The average pass length for a dump lift face is typically a fraction (~2/3) than the existing slope length. The angle of repose slope length for the north face of the BB Undersize Material is 116 feet. Furthermore, because the material will be pushed down a slope, a positive correction is factored into the calculation. The calculation used in the spreadsheet for corrected dozer productivity of slope regrading dozer is as follows:

Corrected Productivity = Productivity/pass x Slope Correction x Correction Factor

where: Productivity/pass = LCY/hr for 2/3 of the existing slope length (~77 feet for 70 high lift

Slope Correction is estimated from Cat Handbook

Correction Factor combines factors for material type and operator skill

For a D9N with a U-type blade the productivity for a 77 foot pass on level ground is 1220 LCY/hr (CAT). Since we will be starting with angle of repose slopes, the slope correction for slopes between angle of repose and 3H:1V is 1.8 (CAT). We have assumed a 0.75 correction factor to allow for loose gravel (easy), but a less experienced operator.

This gives the following solution:

Corrected Productivity = 1220 x 1.8 x 0.75 = 1,647 LCY/hr

The height of the pile has been adjusted in the current calculations to 40 feet in accordance with revisions made to account for removal of fines for use in covering quarry benches. The formulae are the same, but some of the input values have changed. The current solution is:

Corrected Productivity = 2100 (prod/pass for 44ft pass) x 1.8 x .75 = 2,835 LCY/hr

On page 46 of the reclamation cost estimate there is no line item cost for the seed application to the top of the BB Dolomite Undersize Mtl. Please explain this omission. (AAG)

This has been corrected in the final cost estimate attached (Attachment B).

Please revise drawing 5-1 to clearly identify the road sections proposed to be reclaimed as described in the calculations on page 47 of the reclamation cost estimate. (AAG)

A revised version of Drawing 5-1 is forthcoming (March 26, 1997).

As stated in the NOI and EA, the only road sections to remain following closure are ramps developed within the quarry excavations in bedrock and the access road from the first switchback in the Poison Mountain Quarry to the Plant following closure as described in a variance dated August 4, 1989 (UDOGM 1989).

Page 54 of the reclamation estimate includes reclamation treatments for the Poison Mtn. Crusher. The disturbed area shown on this page is 4.2 acres. The previous reclamation estimate for this crusher covered 17 acres of area which included the crushing, screening and kiln rock

stockpile areas. The previous cost estimate for these 17 acres was $28,620. Reduction of the total surety amount of $28,620 cannot be justified unless the new estimate includes reclamation of all the crushing, screening and kiln rock stockpile area. Please adjust the estimate accordingly to include these areas or explain where they have been included.

The new reclamation cost estimate for the Poison Mountain crusher area totals $72,787 (Appendix B). This cost includes all demolition, earthwork, and revegetation for the 17 acres associated with the crushing, screening, and kiln rock stockpile area. The new bond amount to be submitted by CLI will include the difference between the original estimate and the current estimate for this area: $72,787 – $28,620 = $44,167

This same page shows the area for the BB Crusher as 3.7 acres, however Table 2.1 of the Draft EA shows the area as 2.4 acres. Please explain this acreage discrepancy (the final EA may address this). (AAG)

Table 2.1 of the EA has two line items for the BB Crusher areas. 2.4 acres accounts for the Crusher and Miscellaneous, and 1.3 acres accounts for the Screened Stone Stockpiles. 2.4 acres + 1.3 acres = 3.7 acres.

Page 56 of the reclamation estimate describes the level area grading for the crusher facility. The average speed used in calculating productivity for a D9N dozer is shown as six miles per hour. Please justify the use of this speed for grading these areas or recalculate this item using an average speed of three miles per hour. (AAG)

This has been corrected to 1 mile per hour in the final cost estimate attached (Attachment B).

Page 56 of the reclamation estimate describes the structure demolition and disposal for the process facilities. The line item for the process facilities shows a volume of $312,500 CF, a figure for man hours per cubic foot of 0.003, and a cost of $12,619 with the source listed as Means 1995. The value of 0.003 appears to have been used as a cost per cubic foot. The means 1997 Heavy Construction Cost Data section 020-604-0100 lists a demolition cost for a building of mixed construction type at $0.25/CF. Please provide justification for the amount shown in the calculations or revise this item using the unit cost of $0.25/CF.

The reclamation cost spreadsheet has been amended to include the demolition of an all steel building at $0.21/CF (Means 020-604-0012). Removal of conveyors at $12.89/LF was calculated from the Colorado MLRB Cost Estimating Guide (1986) based on Means data and escalated to 1997 costs using Means Historical data per discussions with Division personnel.

This same page (59) includes a unit cost for concrete demolition of $38/CY and lists the source as 1995 NCE. The Means 1997 Heavy Construction Cost Data section 020-754-2500 lists a demolition cost for walls of plain concrete, 12 inches thick at $14.90/SF. The cost would increase if the walls contain steel reinforcement. Please provide justification for the $38/CY unit cost or revise this line item using a $14.90/SF unit cost. (AAG)

The reclamation cost spreadsheet has been amended to include the Division's cost of $14.90/SF. The Division should note that this only includes above ground foundation walls. At or below-grade foundations and footings will be buried during the regrading of the area, before placement of topsoil.

Other

Pursuant to the BLM's request to place 6 inches of fines on the quarry benches, the reclamation cost estimate (Attachment B) has been revised to include the cost of ripping the benches, hauling and spreading the fines, and spreading seed and amends for all three of the quarries. To estimate the horizontal area of each quarry, a 60 degree bench face angle was assumed (see Figure B in previous submittal). Based on this, we estimated that 85% of the horizontally projected area of the quarries will be benches, ramps or floors. This was the area assumed to require fines placement and revegetation.

In addition, the sizes of both undersize material piles were reduced by approximately 20%. This will allow the north side of the Poison Mountain Undersize Stockpile and the west side of the BB Dolomite Undersize Stockpile to be regraded to 3H:1V without blocking the drainage and road, respectively. The reduced size of the piles and regrading of these slopes has required other modifications in the revised reclamation cost estimate (Attachment B).

In order to create final revised drawings and evaluate the BB Dolomite surface water catchment area, the preliminary revisions to the plan will need to be evaluated in detail. Therefore, CLI will require additional time to prepare these items and proposes to submit the revised drawings and the BB Dolomite surface water evaluation to the Division by April 23, 1997.

In order to prepare the test revegetation program, CLI intends to contract this work to a qualified consultant. Based on the required work scope, we anticipate this will be ready for delivery to the Division by April 23, 1997.

If you have any further questions, please do not hesitate to contact me.

Sincerely,

Steffen Robertson and Kirsten, Inc.

Steven K. Herron
Geologist

Reviewed by:

Jeff Parshley, P.G.
Principal Geologist

cc: Mike Brown, CLI
Bob Robison, Cricket Plant
John Kirkham, Stoel Rives, LLP
Rex Rowley, Filmore BLM

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
HOUSE RANGE RESOURCE AREA
35 East 500 North
P.O. Box 778
Fillmore, Utah 84631

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

3500
UTU-070556
(U-055)

January 28, 1997

CERTIFIED MAIL NO. Z 138 791 116

JEFF PARSHLEY P G
DIVISION HEAD MINING AND PERMITTING
STEFFEN ROBERTSON AND KIRSTEN INC
1755 E PLUMB LAND SUITE 241
RENO NV 89502

COPY

Dear Mr. Parshley:

This is in response to your letter dated December 17, 1996, concerning the current status of the review of the Environmental Assessment (EA), prepared by Steffen Robertson and Kirsten, Inc. (SRK) for Continental Lime, Inc. Operating Plan Modification, serial number UTU-070556, for their Cricket Mountain limestone mining project located in Millard County, Utah.

Staff members have reviewed the subject EA and provide the following comments:

- All references to the BLM haul road right-of-way should include its serial number UTU-43199.

- Page 1-2, second paragraph refers to CLI. Continental Lime, Inc. (CLI) should be written out - at least the first time it is mentioned in the document.

- Page 2-2, third paragraph. It would be nice if you were to also include a land status map similar to our 1:100,000 scale maps where Yellow=BLM, Blue=State, Green=FS, White=Private ownership and referenced as Figure 1-3. This could be overlaid with the Cricket Mountain Project.

- Page 2-4, first paragraph second sentence under 2.2 Compliance with Federal and State Laws should read "The management and use of public lands <u>are</u> authorized . . ."

- Page 2-4, 2.2 Compliance with Federal and State Laws. Second paragraph, last sentence. When? dates would be good.

- Page 2-4, 2.3 Project Disturbance. First paragraph. The total of the three estimated acre numbers add up to 303.5 not 303.3 and 472.5 not 472.3 acres as shown in the first sentence on the following page. Also, the maps are kind of confusing with regards to which acres will actually be disturbed. The maps show an area considerably larger than 303.3 acres.

- Page 2-5, 2.4. Site Preparation. Prior existing rights include IPP powerline right-of-way grant UTU-42519 running in a north/south direction in T. 21 S., R. 9 W., Sections 28 and 33. Millard County Communication Site right-of-way grant UTU-58625 is located in T. 21 S., R. 10 W., Section 22, SE¼SE¼.

In addition, since it appears that State Highway 257 would be used for haulage the respective permit(s) should be obtained/updated from FHWA/UDOT/Millard County.

Evidence of water rights (POD, POU, sufficient quantity, etc.) or other source and permission to use needed water.

- Page 2-6, 2.4.2.1 BB Dolomite Quarry. The section shows a disturbance of 51.6 acres, however, on page 2-4 it says 102 acres would be disturbed.

- Page 2-6, 2.4.2.1 BB Dolomite Quarry. Should the first paragraph, first sentence, reference to Figure 1-1 instead be Figure 2-1?

- Page 2-6, 2.4.2.2 West Quarry Area. Should the first paragraph, first sentence, referencing Figure 2-1 instead be Figure 2-2?

- Page 2-7, 2.4.3.1. Proposed Overburden Disposal Areas. Fourth paragraph under Table 2.2. The second sentence states a total disturbance of 40.6 acres. Where does this number come from?

- Page 2-10, 2.4.8.1 Access Road and Project Traffic. Should reference BLM right-of-way grant serial number UTU-43199.

- Page 2-10, 2.4.8.2 Electrical Power. Is the holder of the powerline CLI? If so, reference right-of-way grant serial number UTU-44368.

- Page 2-11, 2.4.8.3 Water Supply. Is there a water appropriation? If so, who is the holder and will a change application need to be filed to accommodate anticipated slight water increase needs?

- Page 2-12, 2.5 Operating Practices. Are these operating practices the same as "mitigating measures"?

- Page 2-13, 2.5.8 Concurrent Reclamation. What is "concurrent reclamation"?

- Page 2-14, 2.6 Reclamation and Closure. Are these the "mitigating measures"?

- Page 2-14, 2.6.2 Land Uses. First paragraph. How can wildlife habitat and grazing uses continue during the mining operations?

Second paragraph. What does "post-closure" mean and how is it done?

- Page 2-15, 2.6.5.1 Quarries. Last sentence indicates the access roads to benches would be restricted, however, these areas are also to be recontoured and reseeded to BLM specifications.

- Page 2-15, 2.6.5.3 Crushing and Screening Facilities. If concrete foundations are NOT removed, plant species with long tap roots wouldn't be able to grow. CLI must remove concrete to allow revegetation.

- Page 2-17, 2.6.6 Soil Balance. Items 4 and 6. Slopes need to be reseeded by placing matting/rehab material on the slopes to keep moisture in for seed growth and to decrease erosion impacts.

- Page 2-17, 2.6.7.2 Seed Mixtures. The seed mix must be certified pure live seed (weed free).

- Page 2-18, Table 2.4. Would prefer a seed mix to the existing plant community?

- Page 2-18, Table 2.4 Proposed Reclamation Seed Mix. Sagebrush should be added if it occurs on the disturbed sites ie., A tridentata (p. 3-7) or Artemisia nova. What about getting some blue bunch wheatgrass - it's native? What about cliffrose and mountain mahogany?

- Page 3-3, 3.1.1.4 Land Use and Recreation. First paragraph, second sentence. Wildlife habitat, too!

- Page 3-6, 3.1.5 Water Resources. Second paragraph. The Beaver River is all but perennial water - is pretty much stopped in Minersville, Utah (between Beaver, Utah and Milford, Utah).

- Page 3-8, 3.1.7 Wildlife. First paragraph. Whitetail (one word) antelope.

Third paragraph. Change marsh harriers to northern harriers. Include red-tailed hawk, ferruginous hawk, Swainson's hawk, American Kestrel (migratory Bald Eagles and peregrine falcons).

Fourth paragraph. Rewrite the first sentence to read "The Chukar partridge is the only upland game specie". Delete sage grouse and ring-necked pheasant as they are not on site area - accordingly, also delete last sentence.

- Page 3-9, 3.1.7.2 Threatened, Endangered, and Sensitive Wildlife. **Sensitive species:** Bald eagle and peregrine falcon - both T&E (Federal). Bats are being proposed for Utah list. Utah Bat working group is working on State list at the present time. Bat list may contain: Allen's big-eared, Fringed myotis, Spotted bat, Townsend's big-eared and western small-footed myotis.

Swainson's hawk, Grasshopper sparrow are State sensitive species and are granted protection under BLM's T&E policies.

Second paragraph. BLM RMP says 1/4 mile buffer (zone). Delete last sentence and add - There are three prairie falcon nests, one redtail hawk, one golden eagle (historic nests) located within the proposed project area. Within 1.5 miles there are two golden eagle, two prairie falcon and one ferruginous nests. The ferruginous was active in 1996. Ferruginous is a Utah State sensitive species. It is warranted the same protection as federally listed spp.

Third paragraph. Place a period after the word winter and delete "depending on the activity of prey" in first sentence.

Fourth paragraph. Utah Prairie dogs are located in Section 23 and possible colony extending into adjacent Section. Prairie dog is federally threatened.

Fourth paragraph. Add there is to be no disturbance between March 1 and June 30.

In Addition: See BLM Manual 6840 - Special Status Species Management, Section D <u>Sensitive Species</u>, which states "State Directors, usually in cooperation with State wildlife agencies, may designate sensitive species. By definition the sensitive species designation includes

species that could easily become endangered or extinct in a State. Therefore, if sensitive species are designated by a State Director, the protection provided by the policy for candidate species shall be used as the minimum level of protection. Also, see Warm Springs Resource Management Plan (April 1987) Chapter 2, page 24.

NOTE: Listing has been revised - see Federal Register Vol. 61, No. 40, Page 7597. This section needs to be revised because of new federal listing and to identify State protected/Sensitive species. The page is very redundant and inaccurate. Because prairie dogs occur within proximity of the project - consult with Marilet Zablan of USFWS and Ken McDonald of UDWR.

If not already coordinated, please send 3 additional copies of the draft EA for distribution to USFWS and UDWR.

- Page 3-10, Table 3.1. List needs to be modified. Use Division of Wildlife list (1987 NOT the revised 1990) and new Federal rules only!

T & E information needs to be redone because listing changes have been made.

Need to check with Ken McDonald (UDWR) and Marilet Zablan (USFWS) regarding the Utah Prairie Dogs since they may occur near the project location. Since it is a newly discovered population, it has not seriously been investigated. Make sure this issue is discussed with the experts.

- Page 3-12, 3.1.9.2 Hazardous Wastes. Last paragraph. What about leaks from heavy equipment?

- Page 3-13, there is a discrepancy between information shown in Section 3.1.11.1 Population and that shown in Section 3.1.11.3 Housing.

- Page 4-5, 4.1.7 Wildlife. Need to talk to Ken McDonald, Frank Howe with UDWR and Marilet Zablan with USFWS about Prairie dogs and raptors. Delete last sentence in second paragraph.

- Page 4-6, 4.1.7 Wildlife. Last paragraph - delete last sentence - very strong doubts about this!

- Page 4-6, 4.1.8 Visual Resource Management and Noise. Second paragraph. Section 2.6.5.1 indicates the quarries

and quarry roads are NOT to be reclaimed - How does this repeat the existing landscape elements?

- Page 5-2, 5.2 Persons, Groups, or Agencies Consulted. Once USFWS and UDWR have been contacted these would need to be added here.

- Better maps of the project areas and habitat should be added.

Should you have any questions or need additional information or clarification feel free to call Ron Teseneer, Geologist, or me at (801) 743-6811.

Sincerely,

Rex Rowley
Area Manager

Table A - Summary Of Surface Disturbance By Land Status
Cricket Mountain Expansion

Facility	Location	Surface Disturbance (acre)					
		BLM	Private	State	Total[1]	Reclaimed	Seeded[2]
BB Dolomite Area							
Haul Roads	S½SE¼ Sec 30, NW¼NE¼ Sec 31, T21S, R9W	5.8	0	0	5.8	5.8	
BB Dolomite Quarry	S½SE¼ Sec 30, NE¼ Sec 31, T21S, R9W	51.6	0	0	51.6	43.9	
Undersize Material Stockpile	SW¼SE¼ S½ Sec 30, NW¼NE¼ Sec 31, T21S, R9W	29.05	0	0	29.05	29.05	
Screened Stone Stockpiles	SW¼SE¼ Sec 30, T21S, R9W	1.3	0	0	1.3	1.3	
Crusher & Misc.	SW¼SE¼ Sec 30, T21S, R9W	2.4	0	0	2.4	2.4	
Soil Stockpile	SE¼SW¼ Sec 30, NE¼NW¼ Sec 31, T21S, R9W	3.9	0	0	3.9	3.9	
Subtotal		94.1	0	0	94.1	86.4	
West Quarry Area							
Haul Roads	Sec 25, E½ Sec 26, NE¼NE¼ Sec 35, T21S, R10W	8.02	11.4	0	19.4	19.4	
Flat Iron Quarry	W¼ Sec 25, E½ Sec 26, T21S, R10W	42.0	21.1	0	63.1	53.6	
North Lobe Quarry	W½SW¼ Sec 25, E½SE¼ Sec 26, T21S, R10W	1.3	32.2	0	33.5	28.5	
Potential North Lobe Expansion	SE¼SE¼ Sec 26, T21S, R10W	0.9	1.4	0	2.3	N/A	
Overburden Disposal Area #1	S½NE¼ Sec 26, T21S, R10W	19.6	6.9	0	26.5	23.3	6.0
Overburden Disposal Area #2	SW¼ Sec 25, T21S, R10W	23.9	0	0	23.9	12.7	18.5
Overburden Disposal Area #3	S½SE¼ Sec 26, T21S, R10W	8.5	1.0	0	9.5	7.8	3.1
Overburden Disposal Area #4	SW¼SW¼ Sec 25, SE¼SE¼ Sec 26, NE¼NE¼ Sec 35, NW¼NW¼ Sec 36, T21S, R10W	5.8	0	1.3	7.1	6.2	2.3
Soil Stockpile #1	SW¼NW¼ Sec 25, T21S, R10W	2.8	0	0	2.8	2.8	
Soil Stockpile #2	NW¼SE¼ Sec 25, T21S, R10W	2.4	0	0	2.4	2.4	
Subtotal		115.2	74.0	1.3	190.5	156.7	
Existing Poison Mountain Area							
Undersize Material Stockpile	SE¼ Sec 25, T21S, R10W	4.1	0	0	4.1	4.1	
Total New Disturbance, Cricket Mountain Project							
Total		213.4	74.0	1.3	288.7	247.2	

Notes: 1 Surface areas used for disturbance are based on horizontal projections, whereas reclamation acreages and cost estimates are based on actual surface area including slopes.
2 CLI has committed to apply seed only to the angle of repose slopes of the waste rock dumps. A variance from revegetation standards has been requested for these areas.